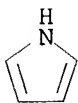


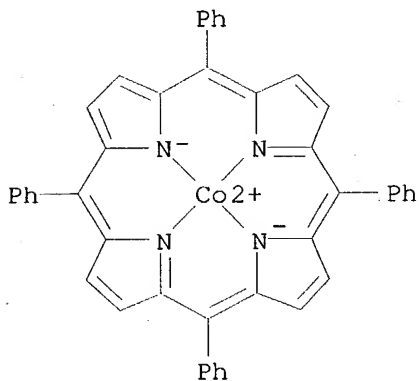
CRN 109-97-7  
CMF C4 H5 N



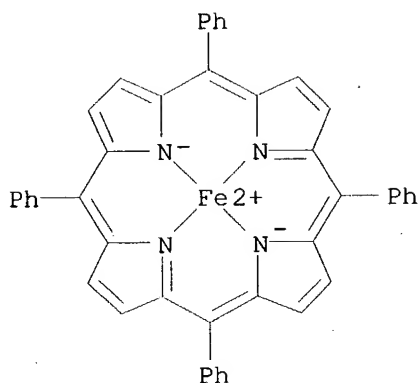
IT 7647-10-1, Palladium dichloride  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(catalysts containing polypyrrole and mol. sieves and, for oxidation of cyclohexane)  
RN 7647-10-1 HCAPLUS  
CN Palladium chloride (PdCl<sub>2</sub>) (6CI, 8CI, 9CI) (CA INDEX NAME)

Cl-Pd-Cl

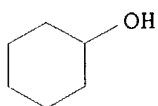
IT 14172-90-8 16591-56-3  
RL: CAT (Catalyst use); USES (Uses)  
(catalysts containing, for oxidation of cyclohexane)  
RN 14172-90-8 HCAPLUS  
CN Cobalt, [5,10,15,20-tetraphenyl-21H,23H-porphinato(2-)-κN21,κN22,κN23,κN24]-, (SP-4-1)- (9CI) (CA INDEX NAME)



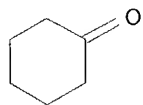
RN 16591-56-3 HCAPLUS  
CN Iron, [5,10,15,20-tetraphenyl-21H,23H-porphinato(2-)-κN21,κN22,κN23,κN24]-, (SP-4-1)- (9CI) (CA INDEX NAME)



IT 108-93-0P, Cyclohexanol, preparation 108-94-1P,  
Cyclohexanone, preparation 124-04-9P, Adipic acid, preparation  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT  
(Reactant or reagent)  
(improved synthesis of, by oxidation of cyclohexane)  
RN 108-93-0 HCAPLUS  
CN Cyclohexanol (8CI, 9CI) (CA INDEX NAME)



RN 108-94-1 HCAPLUS  
CN Cyclohexanone (7CI, 8CI, 9CI) (CA INDEX NAME)



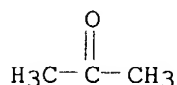
RN 124-04-9 HCAPLUS  
CN Hexanedioic acid (9CI) (CA INDEX NAME)

HO<sub>2</sub>C-(CH<sub>2</sub>)<sub>4</sub>-CO<sub>2</sub>H

IT 110-82-7, Cyclohexane, reactions  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(oxidation of, catalysts for)  
RN 110-82-7 HCAPLUS  
CN Cyclohexane (8CI, 9CI) (CA INDEX NAME)

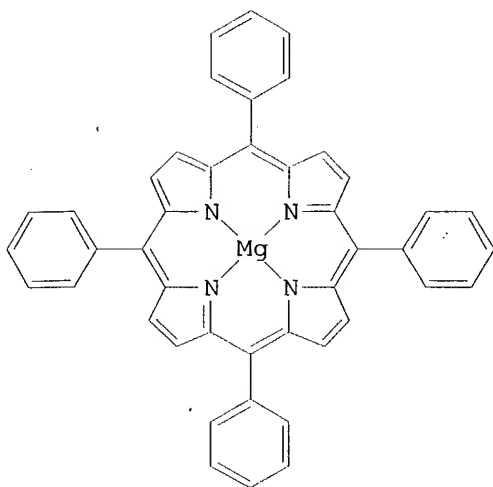


IT 67-64-1, Acetone, uses  
 RL: USES (Uses)  
 (solvent, for oxidation of cyclohexane)  
 RN 67-64-1 HCAPLUS  
 CN 2-Propanone (9CI) (CA INDEX NAME)



L43 ANSWER 5 OF 13 HCAPLUS COPYRIGHT 2004 ACS on STN  
 ACCESSION NUMBER: 1991:228526 HCAPLUS  
 DOCUMENT NUMBER: 114:228526  
 TITLE: Preparation of secondary-butyltoluene hydroperoxide  
 INVENTOR(S): Ono, Hiroyasu; Yorozu, Kiyotaka  
 PATENT ASSIGNEE(S): Mitsui Petrochemical Industries, Ltd., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 4 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 03011058	A2	19910118	JP 1989-146109	19890608 <--
PRIORITY APPLN. INFO.:			JP 1989-146109	19890608 <--
OTHER SOURCE(S):		CASREACT 114:228526; MARPAT 114:228526		
GI				



III

AB The title compound is prepared in high selectivity to tertiary hydroperoxide (I) by treatment of EtCHMeC6H4Me (II) with O-containing gas in the presence of  $\geq 1$  complex of alkaline earth metal or transition metal with tetraphenylporphyrins. A mixture of II, an aqueous Na<sub>2</sub>CO<sub>3</sub> solution, and porphyrin-Mg<sup>2+</sup> complex III was heated under bubbling with air to 120° and I was added to initiate the reaction, concentration of I in the reaction product after 3 h was 12.0%, vs. 1.0% for a control without addition of III.

IT 14172-91-9 14172-92-0 14640-21-2

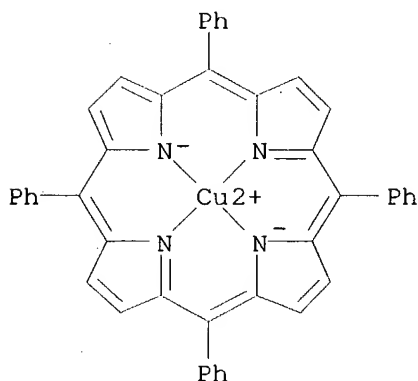
14705-63-6 16456-81-8

RL: CAT (Catalyst use); USES (Uses)

(catalyst, for oxidation of sec-butyltoluene, tertiary hydroperoxide from)

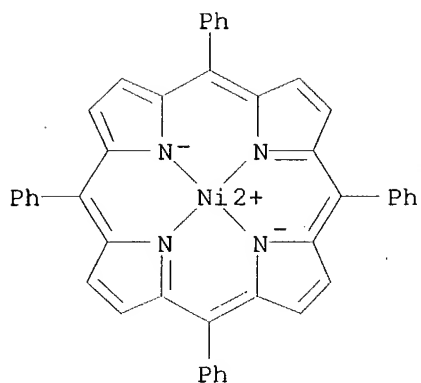
RN 14172-91-9 HCAPLUS

CN Copper, [5,10,15,20-tetraphenyl-21H,23H-porphinato(2-)-  
κN21,κN22,κN23,κN24]-, (SP-4-1)- (9CI) (CA INDEX  
NAME)

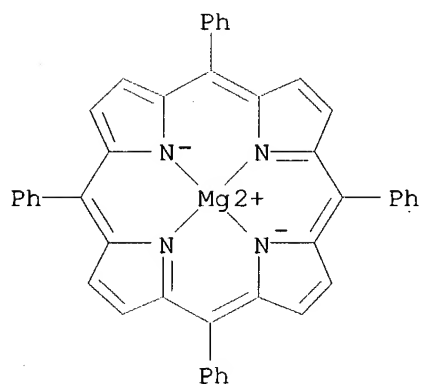


RN 14172-92-0 HCAPLUS

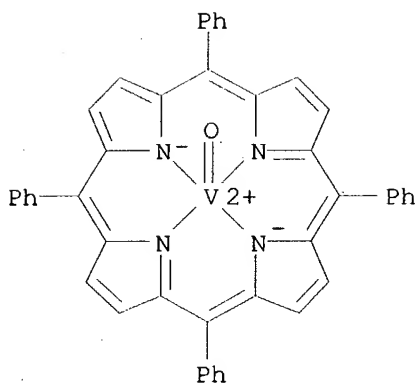
CN Nickel, [5,10,15,20-tetraphenyl-21H,23H-porphinato(2-)-  
κN21,κN22,κN23,κN24]-, (SP-4-1)- (9CI) (CA INDEX  
NAME)



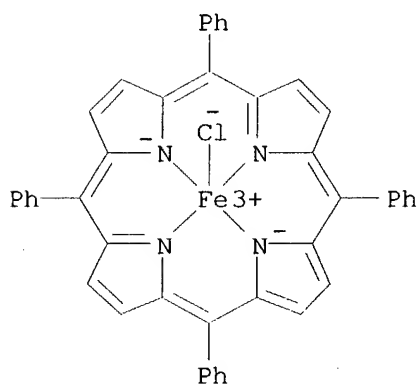
RN 14640-21-2 HCAPLUS  
 CN Magnesium, [5,10,15,20-tetraphenyl-21H,23H-porphinato(2-)-  
 $\kappa$ N21, $\kappa$ N22, $\kappa$ N23, $\kappa$ N24]-, (SP-4-1)- (9CI) (CA INDEX  
 NAME)



RN 14705-63-6 HCAPLUS  
 CN Vanadium, oxo[5,10,15,20-tetraphenyl-21H,23H-porphinato(2-)-  
 $\kappa$ N21, $\kappa$ N22, $\kappa$ N23, $\kappa$ N24]-, (SP-5-12)- (9CI) (CA INDEX  
 NAME)



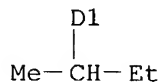
RN 16456-81-8 HCAPLUS  
 CN Iron, chloro[5,10,15,20-tetraphenyl-21H,23H-porphinato(2-)-  
 $\kappa$ N21, $\kappa$ N22, $\kappa$ N23, $\kappa$ N24]-, (SP-5-12)- (9CI) (CA INDEX  
 NAME)



IT 26571-04-0, sec-Butyltoluene  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (oxidation of, tertiary hydroperoxide from, catalysts for)  
 RN 26571-04-0 HCAPLUS  
 CN Benzene, methyl(1-methylpropyl)- (9CI) (CA INDEX NAME)



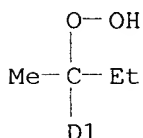
D1-Me



IT 113588-16-2P, 2-Tolyl-2-hydroperoxybutane  
 RL: SPN (Synthetic preparation); PREP (Preparation)  
 (preparation of, by catalytic oxidation of sec-butyltoluene)  
 RN 113588-16-2 HCAPLUS  
 CN Hydroperoxide, 1-methyl-1-(methylphenyl)propyl (9CI) (CA INDEX NAME)



D1-Me



L43 ANSWER 6 OF 13 HCAPLUS COPYRIGHT 2004 ACS on STN  
 ACCESSION NUMBER: 1991:188007 HCAPLUS  
 DOCUMENT NUMBER: 114:188007  
 TITLE: Production of detergent range alcohols and ketones  
 from alkanes using porphyrin catalysts  
 INVENTOR(S): Sanderson, John R.; Marquis, Edward T.; Payton, Howard  
 F.  
 PATENT ASSIGNEE(S): Texaco Chemical Co., USA  
 SOURCE: U.S., 11 pp.  
 CODEN: USXXAM  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 3  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 4978799	A	19901218	US 1989-428812	19891030 <--
EP 426290	A2	19910508	EP 1990-310155	19900917 <--
EP 426290	A3	19910925		
R: DE, FR, GB, IT				
JP 03169831	A2	19910723	JP 1990-290985	19901030 <--
PRIORITY APPLN. INFO.:			US 1989-428701	19891030 <--
			US 1989-428703	19891030 <--
			US 1989-428812	19891030 <--

AB The reaction of C10-18 alkanes with a hydroperoxide, especially tert-BuOOH or cumene hydroperoxide (I), in the presence of a transition metal (especially Fe, Mn, or Co) porphyrin catalyst gives alcs. and ketones with minimal formation of byproducts. A mixture of dodecane 50.0, chloroferrocene phthalocyanine 0.10, and imidazole 0.07 g was treated slowly at 30° with 80% I to give 5.02% dodecanones and 1.42% dodecanols.

IT 132-16-1, Ferrous phthalocyanine 142-71-2, Cupric acetate 147-14-8, Cupric phthalocyanine 288-32-4, Imidazole, uses and miscellaneous 536-80-1, Iodosylbenzene

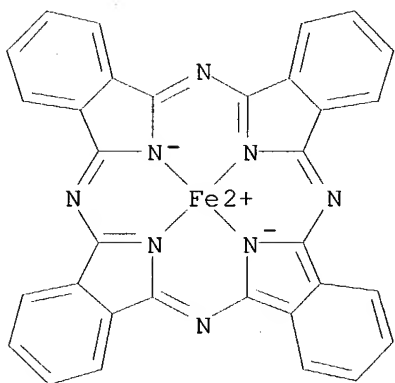
1643-19-2, Tetrabutylammonium bromide 4328-13-6,  
 Tetrahexylammonium bromide 7601-89-0, Sodium perchlorate  
 12030-88-5, Potassium superoxide 12676-27-6  
 13395-16-9, Cupric acetylacetonate 14172-90-8  
 14285-56-4, Chloroferic phthalocyanine 16456-81-8  
 58356-65-3 60385-96-8

RL: CAT (Catalyst use); USES (Uses)

(catalysts, for oxidation of alkanes to alcs. and ketones)

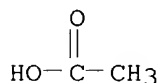
RN 132-16-1 HCAPLUS

CN Iron, [29H,31H-phthalocyaninato(2-)-κN29,κN30,κN31,.kapp  
 a.N32]-, (SP-4-1)- (9CI) (CA INDEX NAME)



RN 142-71-2 HCAPLUS

CN Acetic acid, copper(2+) salt (8CI, 9CI) (CA INDEX NAME)



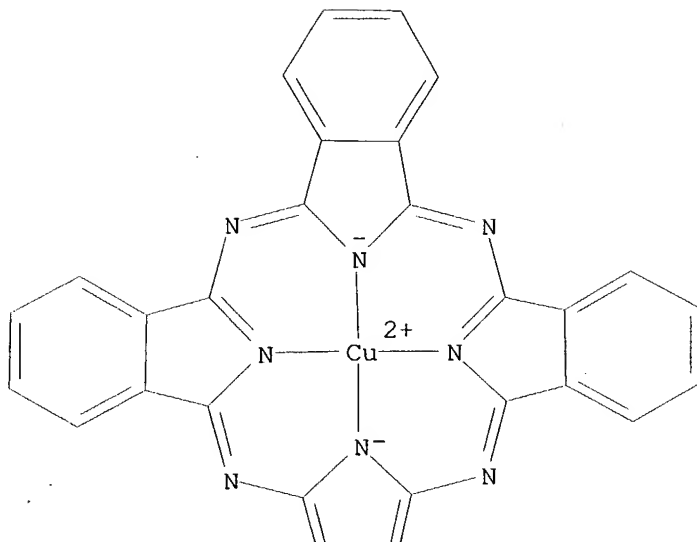
●1/2 Cu(II)

RN 147-14-8 HCAPLUS

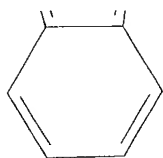
CN Copper, [29H,31H-phthalocyaninato(2-)-κN29,κN30,κN31,.ka  
 ppa.N32]-, (SP-4-1)- (9CI) (CA INDEX NAME)



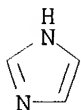
PAGE 1-A



PAGE 2-A



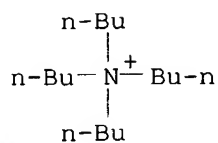
RN 288-32-4 HCAPLUS  
CN 1H-Imidazole (9CI) (CA INDEX NAME)



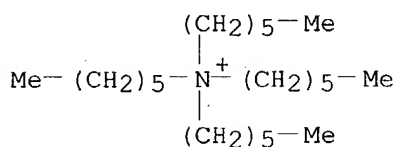
RN 536-80-1 HCAPLUS  
CN Benzene, iodosyl- (9CI) (CA INDEX NAME)

O=I-Ph

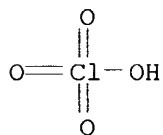
RN 1643-19-2 HCAPLUS  
CN 1-Butanaminium, N,N,N-tributyl-, bromide (9CI) (CA INDEX NAME)



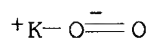
RN 4328-13-6 HCAPLUS  
CN 1-Hexanaminium, N,N,N-trihexyl-, bromide (9CI) (CA INDEX NAME)



RN 7601-89-0 HCAPLUS  
CN Perchloric acid, sodium salt (8CI, 9CI) (CA INDEX NAME)



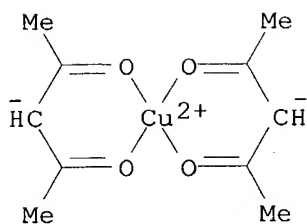
RN 12030-88-5 HCAPLUS  
CN Potassium superoxide (K(O<sub>2</sub>)) (9CI) (CA INDEX NAME)



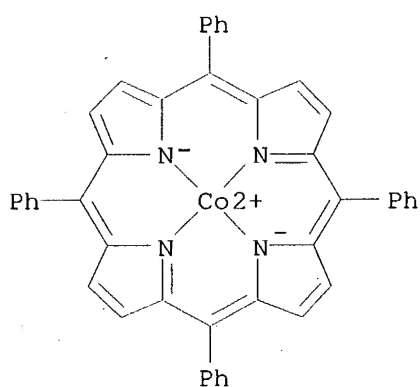
RN 12676-27-6 HCAPLUS  
CN Boric acid, lithium salt (9CI) (CA INDEX NAME)

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

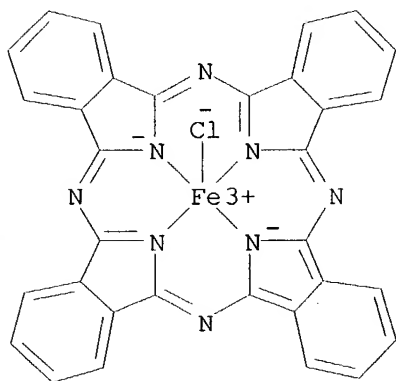
RN 13395-16-9 HCAPLUS  
CN Copper, bis(2,4-pentanedionato-κO,κO')-, (SP-4-1)- (9CI) (CA INDEX NAME)



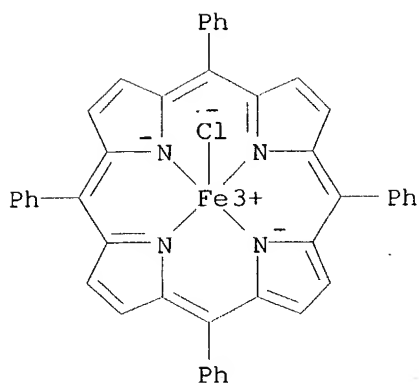
RN 14172-90-8 HCAPLUS  
 CN Cobalt, [5,10,15,20-tetraphenyl-21H,23H-porphinato(2-)-  
 $\kappa$ N21, $\kappa$ N22, $\kappa$ N23, $\kappa$ N24]-, (SP-4-1)- (9CI) (CA INDEX  
 NAME)



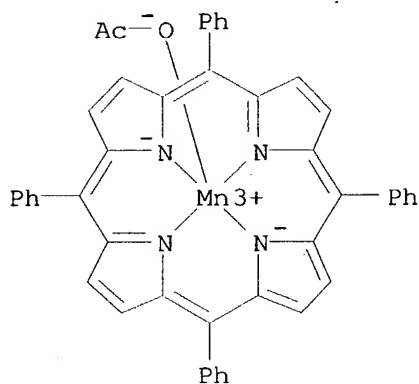
RN 14285-56-4 HCAPLUS  
 CN Iron, chloro[29H,31H-phthalocyaninato(2-)- $\kappa$ N29, $\kappa$ N30, $\kappa$ N31,  
 $\kappa$ N32]-, (SP-5-12)- (9CI) (CA INDEX NAME)



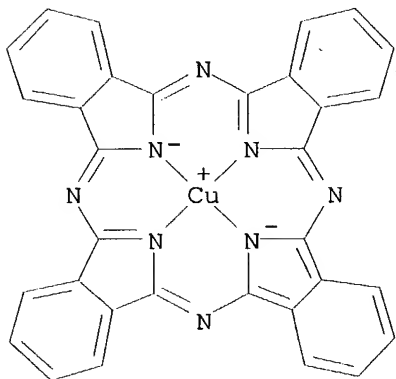
RN 16456-81-8 HCAPLUS  
 CN Iron, chloro[5,10,15,20-tetraphenyl-21H,23H-porphinato(2-)-  
 $\kappa$ N21, $\kappa$ N22, $\kappa$ N23, $\kappa$ N24]-, (SP-5-12)- (9CI) (CA INDEX  
 NAME)



RN 58356-65-3 HCAPLUS  
 CN Manganese, (acetato-κO) [5,10,15,20-tetraphenyl-21H,23H-porphinato(2-)-κN21,κN22,κN23,κN24]-, (SP-5-12)- (9CI) (CA INDEX NAME)



RN 60385-96-8 HCAPLUS  
 CN Cuprate(1-), [29H,31H-phthalocyaninato(2-)-κN29,κN30,κN31,κN32]-, (SP-4-1)- (9CI) (CA INDEX NAME)



IT 27342-88-7P, Dodecanol 35655-31-3P, Dodecanone  
 RL: PREP (Preparation)  
 (manufacture of, from dodecane, catalysts for)  
 RN 27342-88-7 HCAPLUS  
 CN Dodecanol (8CI, 9CI) (CA INDEX NAME)

Me-(CH<sub>2</sub>)<sub>10</sub>-Me

D1-OH

RN 35655-31-3 HCAPLUS  
 CN Dodecanone (9CI) (CA INDEX NAME)

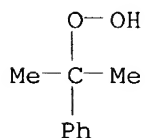
Me-(CH<sub>2</sub>)<sub>10</sub>-Me

D2=O

IT 75-91-2, tert-Butyl hydroperoxide 80-15-9, Cumene  
 hydroperoxide  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (oxidation by, of alkanes to alcs. and ketones)  
 RN 75-91-2 HCAPLUS  
 CN Hydroperoxide, 1,1-dimethylethyl (9CI) (CA INDEX NAME)

HO-O-Bu-t

RN 80-15-9 HCAPLUS  
 CN Hydroperoxide, 1-methyl-1-phenylethyl (9CI) (CA INDEX NAME)



IT 112-40-3, Dodecane  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (oxidation of, to alcs. and ketones, catalysts for)  
 RN 112-40-3 HCAPLUS  
 CN Dodecane (8CI, 9CI) (CA INDEX NAME)

Me-(CH<sub>2</sub>)<sub>10</sub>-Me

L43 ANSWER 7 OF 13 HCAPLUS COPYRIGHT 2004 ACS on STN  
 ACCESSION NUMBER: 1990:118456 HCAPLUS

DOCUMENT NUMBER: 112:118456  
 TITLE: Method of preparing substituted cyclic carboxylic acids by oxidation of cyclic hydrocarbons with air or oxygen using metal complex catalysts  
 INVENTOR(S): Svensson, Nils A.  
 PATENT ASSIGNEE(S): Nobel Chemicals AB, Swed.  
 SOURCE: U.S., 3 pp.  
 CODEN: USXXAM  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 4866204	A	19890912	US 1988-156036	19880216 <--
SE 8700657	A	19880819	SE 1987-657	19870218 <--

PRIORITY APPLN. INFO.: SE 1987-657 19870218 <--

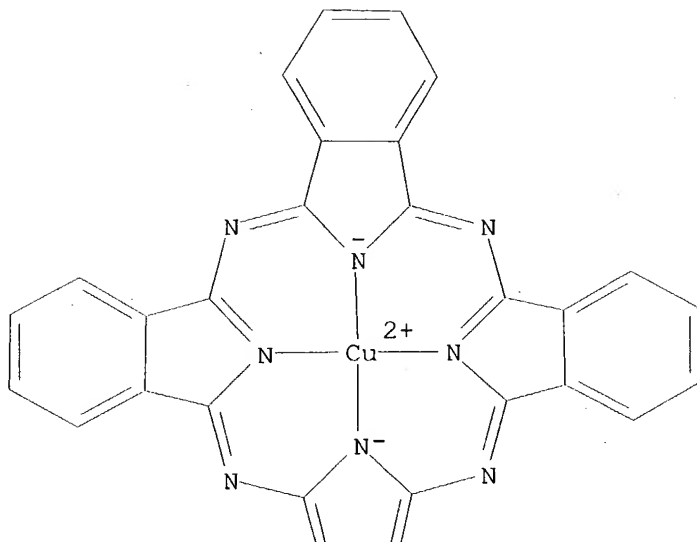
AB Substituted cyclic carboxylic acids, specifically benzoic and phthalic acids, are prepared by oxidation of corresponding cyclic hydrocarbons with air or O in the liquid phase in an organic solvent under alkaline conditions using metal complex catalysts. The catalysts are Fe, Ni, Mn, or V tetraphenylporphines, or Ni, Cu, Co, Mn, Cr, or Ti phthalocyanines or acetylacetonates, or their mixts. Thus, air was passed forcefully into a mixture of 100 mL MeOH, 34.0 g KOH, 13.7 g o-nitrotoluene, and 10 mg freshly prepared Fe tetraphenylporphine chloride at 25° for 18 h to give o-nitrobenzoic acid in 95% yield.

IT 147-14-8, Copper phthalocyanine 3264-82-2, Nickel acetylacetonate 3317-67-7, Cobalt phthalocyanine 13395-16-9, Copper acetylacetonate 14024-48-7 14055-02-8 14172-92-0, Nickel tetraphenylporphine 14284-89-0, Manganese acetylacetonate 14284-96-9 14285-60-0, Chromium phthalocyanine 14325-24-7, Manganese phthalocyanine 14705-63-6 16591-56-3, Iron tetraphenylporphine 21679-31-2, Chromium acetylacetonate 31004-82-7, Manganese tetraphenylporphine 52324-93-3, Titanium phthalocyanine 125491-21-6  
 RL: CAT (Catalyst use); USES (Uses)  
 (catalyst, for oxidation of cyclic hydrocarbons to cyclic carboxylic acids)

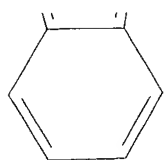
RN 147-14-8 HCAPLUS

CN Copper, [29H,31H-phthalocyaninato(2-)-κN29,κN30,κN31,.ka ppa.N32]-, (SP-4-1)- (9CI) (CA INDEX NAME)

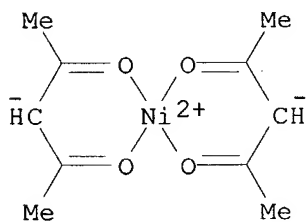
PAGE 1-A



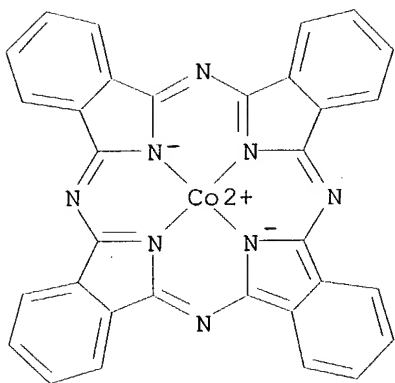
PAGE 2-A



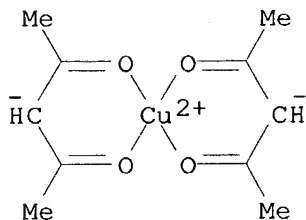
RN 3264-82-2 HCAPLUS  
CN Nickel, bis(2,4-pentanedionato-κO,κO')-, (SP-4-1)- (9CI) (CA INDEX NAME)



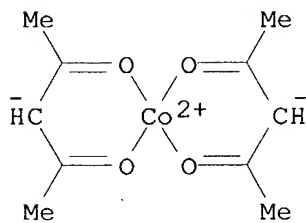
RN 3317-67-7 HCAPLUS  
CN Cobalt, [29H,31H-phthalocyaninato(2-)-κN29,κN30,κN31,.ka ppa.N32]-, (SP-4-1)- (9CI) (CA INDEX NAME)



RN 13395-16-9 HCAPLUS  
CN Copper, bis(2,4-pentanedionato- $\kappa$ O, $\kappa$ O')-, (SP-4-1)- (9CI) (CA INDEX NAME)



RN 14024-48-7 HCAPLUS  
CN Cobalt, bis(2,4-pentanedionato- $\kappa$ O, $\kappa$ O')-, (SP-4-1)- (9CI) (CA INDEX NAME)



RN 14055-02-8 HCAPLUS  
CN Nickel, [29H,31H-phthalocyaninato(2-)- $\kappa$ N29, $\kappa$ N30, $\kappa$ N31,.ka ppa.N32]-, (SP-4-1)- (9CI) (CA INDEX NAME)